

# 4 Recovery Goals and Delisting Criteria

The mandate of the Recovery Strategy is to achieve recovery of California coho salmon to the point where the regulations, or other protections for coho salmon listed under CESA are not necessary (FGC § 2105), and the species can be delisted. For the Department to determine that the species has recovered to the point where delisting is warranted, certain “delisting criteria” must be met. For the CCC Coho ESU there are also “downlisting criteria” and their associated quantitative targets which must be met in order to downlist the species from ‘Endangered’ to ‘Threatened’. This chapter describes the recovery goals, delisting criteria, and quantitative targets for these criteria by watershed recovery unit (recovery unit). The Recovery Strategy incorporates an additional goal of restoring viable tribal, recreational, and commercial coho salmon fisheries in California (see Section 4.3).

The frameworks for recovering coho salmon (goals I-V) and restoring coho salmon fisheries (goal VI) are discussed in this chapter (see Figure 4-1). Research, monitoring, and adaptive management of coho salmon populations and recovery activities will be used to both improve the framework and measure progress towards these goals.

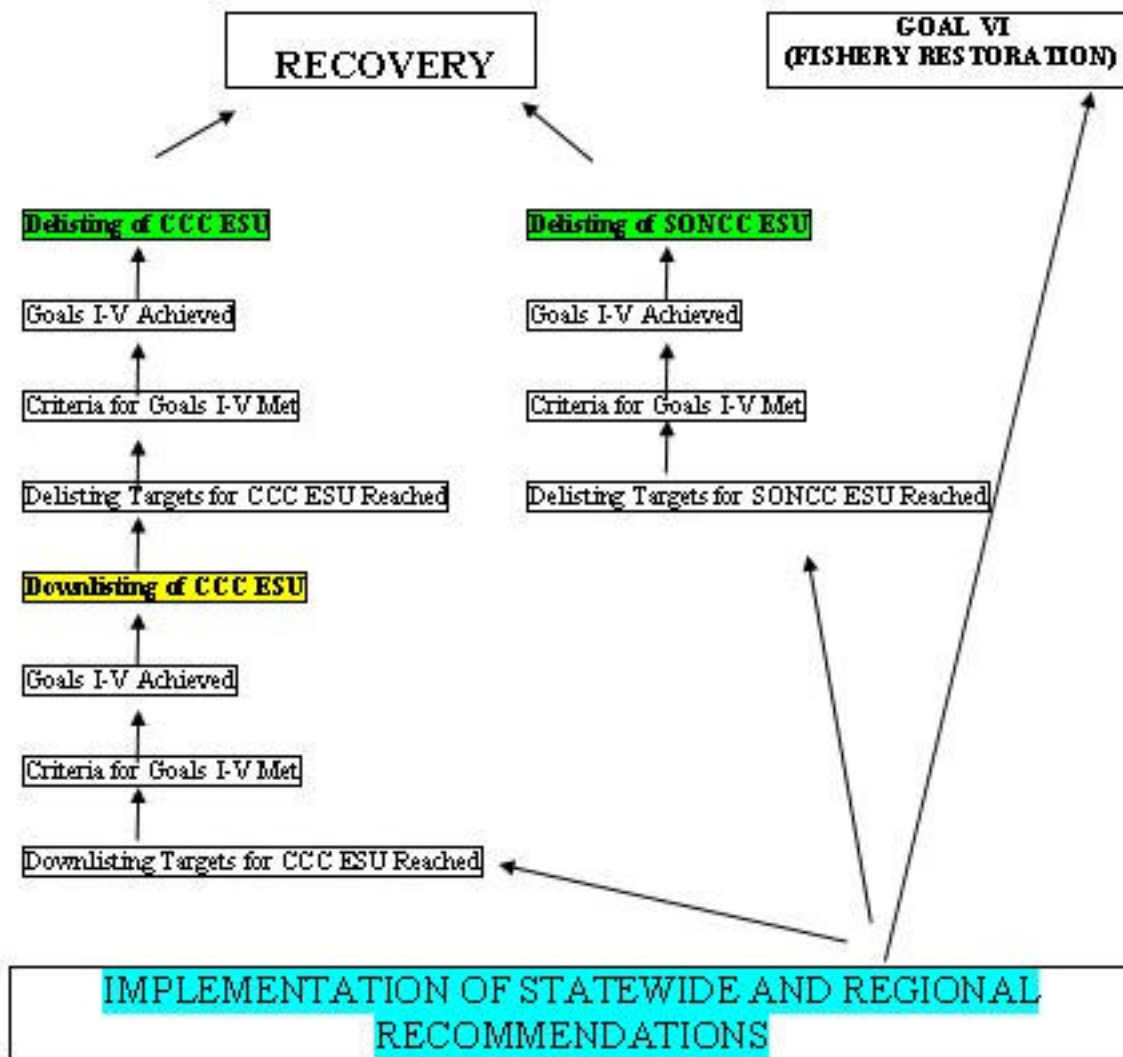
## 4.1 STATUTORY RECOVERY STRATEGY CONDITIONS

The recovery strategy must meet specific conditions that are evaluated by the Commission (§ 2111(a)-(e)<sup>1</sup>). These conditions are:

- a. The recovery strategy would conserve, protect, restore, and enhance the species;

<sup>1</sup> FGC § 2111(e) was added by SB 216 (Statutes 2003 Chap. 854). The author of SB 216 notes in a letter, dated September 12, 2003 (published in the Senate Journal on September 13, 2003) that it “does not change the primary goal of the Recovery Strategy program as set forth in Section 2105 of the Fish and Game Code... Therefore, if a species has recovered to the point that the regulatory requirements or other protections for species listed pursuant to CESA are no longer necessary, then no permit pursuant to CESA would be required for incidental take of the species, even if the species has not achieved a level of abundance that would permit resumption of commercial use.”

FIGURE 4-1: THE PROCESS OF COHO SALMON RECOVERY AND FISHERY RESTORATION



Notes:

1. Delisting of CCC and SONCC Coho ESUs can occur independently.
2. Goal VI, though an explicit part of this Recovery Strategy, is not a necessary requirement for recovery to occur.

- b. The recovery strategy and implementation schedule are capable of being carried out in a scientifically, technologically, and economically reasonable manner;
- c. The recovery strategy is supported by the best available scientific data;
- d. The recovery strategy represents an equitable apportionment of both public and private and regulatory and non-regulatory obligations; and
- e. The recovery strategy would recover a formerly commercially valuable species to a level of abundance that would permit commercial use of that species.

#### 4.2 FRAMEWORK FOR RECOVERY

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The mandate of the Recovery Strategy is to achieve recovery of coho salmon populations and their habitat so the species is neither threatened nor endangered with extinction in either of the ESUs. Successful recovery means that the regulations or other protections for coho salmon listed under CESA would no longer be necessary. Achieving this mandate will take a combination of five principle recovery goals. These goals address either coho salmon populations directly or coho salmon habitat. The goals that address coho salmon populations (goals I-III) focus on protecting and increasing the number coho salmon populations, and maintaining and expanding salmon distribution within both ESUs. Goals that address habitat (goals IV-V) focus on protecting existing habitat essential for coho salmon, and enhancing and restoring additional habitat.

The five recovery goals, as well as their downlisting and delisting criteria and associated quantitative targets, are outlined below and discussed in detail in section 4.2.1 (see also Figure 4-1). When recovery of a coho salmon ESU is achieved, that ESU can be delisted, i.e., formally removed from the California Code of Regulations (Title 14, § 670.5). Because the CCC Coho ESU will be listed as endangered, it must first achieve downlisting from endangered to threatened before being delisted. The additional goal of restoring coho salmon fisheries (goal VI) is an integral and explicit part of the Recovery Strategy; however, while limited recreational fishing may be possible, goal VI cannot be wholly achieved until goals I-V have been achieved.

Recovery goals I-V were developed with the idea that each goal uniquely contributes to maximizing genetic diversity and population persistence in the face of environmental variation and stochastic events. The recovery goals apply to natural stocks of coho salmon as well as to coho salmon produced from recovery, conservation, and mitigation hatcheries. Achievement of goals I-V at the ESU level will signal the ability to downlist or delist coho salmon under CESA.

Goals I-V and their associated criteria apply to both the CCC and SONCC Coho ESUs. The SONCC Coho ESU will be listed as threatened and so will require only quantitative targets for delisting (Table 4-2).

Because the CCC Coho ESU will be listed as endangered, there are two sets of quantitative targets for measuring progress. The first set determines when the CCC Coho ESU can be downlisted from endangered to threatened (Table 4-3). The second set will be for delisting (Table 4-4).

The quantitative targets are discussed in Section 4.2.2. These targets represent the quantitative components of the otherwise qualitative criteria used to measure progress towards achievement of the recovery goals.

The inherent uncertainty of complex environmental and biological systems precludes the possibility of setting an exact timeline for successful coho recovery. Some goals, such as restoring and enhancing habitat, may be achieved sooner than other goals. In addition, achieving delisting of the CCC Coho ESU is likely to take longer than delisting of the SONCC Coho ESU. The Department believes that, based on an approximate 50-year cycle of the Pacific Inter-Decadal Oscillation (PDO), the 3-year life cycle of coho salmon, and the estimate by the Oregon Department of Fish and Wildlife of needing more than two decades to measure coho salmon recovery in that state, a period of at least 21 years<sup>2</sup> represents a reasonable initial time period for evaluating the status and trend of coho salmon in California.

#### 4.2.1 RECOVERY GOALS AND DELISTING CRITERIA

The five recovery goals are stated below and further described, with their accompanying delisting criteria and the methods for measuring each criterion's progress and status, in section 4.2.1.1.

GOAL I. MAINTAIN AND IMPROVE THE NUMBER OF KEY POPULATIONS AND INCREASE THE NUMBER OF POPULATIONS AND BROOD-YEARS<sup>3</sup> OF COHO SALMON.

GOAL II. MAINTAIN AND INCREASE THE NUMBER OF SPAWNING ADULTS.

GOAL III. MAINTAIN THE RANGE AND MAINTAIN AND INCREASE THE DISTRIBUTION OF COHO SALMON.

GOAL IV. MAINTAIN EXISTING HABITAT ESSENTIAL FOR COHO SALMON.

GOAL V. ENHANCE AND RESTORE HABITAT WITHIN THE RANGE OF COHO SALMON.

The Recovery Strategy includes an additional goal aimed at restoring coho salmon fisheries, although achieving this goal is not a necessary requirement for delisting and

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<sup>2</sup> Twenty-one years would allow for evaluation of 7 complete brood-year complements.

<sup>3</sup> See page 2-17 for discussion of coho salmon brood years.

recovery. Goal VI addresses the newly adopted § 2111(e) of the FGC and is discussed separately in section 4.3.

**GOAL VI: REACH AND MAINTAIN COHO SALMON POPULATION LEVELS THAT ALLOW FOR THE RESUMPTION OF TRIBAL, RECREATIONAL, AND COMMERCIAL FISHERIES FOR COHO SALMON IN CALIFORNIA.**

Each of the recovery goals I-V has one or more criteria to evaluate progress toward delisting and, ultimately, recovery. Specific, quantitative targets have been set, or will be set in the near-future, for evaluating whether a criterion has been met. Although the same qualitative criteria will be used to evaluate progress of both the CCC and SONCC Coho ESUs towards recovery, the quantitative targets for delisting of the CCC and SONCC Coho ESUs differ, as do the targets for downlisting of the CCC Coho ESU as compared to delisting of the CCC Coho ESU (see Figure 4-1).

Preliminary targets set in this Recovery Strategy are based on the best available information. Where there was not sufficient information to set preliminary targets, a timeline to set those targets is substituted and discussed below. Coho salmon are also federally listed under ESA, and NOAA Fisheries are developing recovery goals and criteria for their federal recovery plans. The Department's proposed timeline for development of the other quantitative targets in this Recovery Strategy parallels the timelines for each of NOAA Fisheries' two Technical Review Teams (TRTs) working on the coho salmon ESUs in California. The Department is collaborating with both TRTs, and when the TRTs release their public documents, the Department will update its quantitative targets, if appropriate.

Integrating Department and NOAA Fisheries timelines for criteria development will not delay the determination of delisting because a determination that delisting or downlisting is warranted will require a sustained trend over multiple coho salmon generations (at least seven coho generations, or 21 years), regardless of the metrics used. Updates and possible revisions to the targets will be a key component of the Recovery Strategy's annual progress reports. Tables 4-2, 4-3, and 4-4 list quantitative targets for delisting of the SONCC Coho ESU, downlisting of the CCC Coho ESU, and delisting of the CCC Coho ESU, respectively.

**4.2.1.1 Recovery Goals, Delisting Criteria, and Progress Evaluation**

**GOAL I. MAINTAIN AND IMPROVE THE NUMBER OF KEY POPULATIONS AND INCREASE THE NUMBER OF POPULATIONS AND BROOD-YEARS<sup>4</sup> OF COHO SALMON.**

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<sup>4</sup> See page 2-17 for discussion of coho salmon brood years.

For the purposes of recovery, key populations are defined as “populations of coho salmon that are thought to constitute biological refugia, source populations, or metapopulations.”<sup>5</sup> Generally, key populations are those that occur in coho salmon habitat of relatively high quality, with a full complement of year-classes, or with abundances that are high relative to other populations within the same recovery unit, or that place them at an insignificant risk of extinction. As the Department, NOAA Fisheries, and other population investigations (McElhany et al. 2000) conclude their analyses, the term “identified viable salmonid populations” will replace “key populations”.

*Criterion 1 Key coho salmon populations are maintained and improved, at target levels specified for the recovery unit (see Tables 4-2, 4-3, and 4-4).*

Methods for measuring the progress and status:

- a. Identify key populations within each ESU.
- b. Identify appropriate areas where coho salmon could establish populations.
- c. Apply actions and mechanisms for maintaining and improving key populations and establishing additional populations.
- d. Develop and implement population monitoring, both inland and ocean.

*Criterion 2 Additional coho salmon populations are established at target levels specified for the recovery unit (see Tables 4-2, 4-3, and 4-4).*

Methods for measuring the progress and status are the same as for Criterion 1 above.

*Criterion 3 An increase in the number of brood-years present has been attained and sustained, as specified for the recovery units (targets to be reported in 2004 and 2005):*

*For both the CCC and SONCC Coho ESUs:*

- i. *Increasing the number of brood-years present from two to three (a full brood-year complement), as specified for the recovery unit;*
- ii. *Increasing the number of brood-years present from one to two of three brood-years, as specified for the recovery unit;*

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<sup>5</sup> Streams and rivers currently identified as maintaining key populations are listed in Appendix D.

*For the CCC Coho ESU only:*

- iii. *For the CCC Coho ESU, increasing the number of brood-years present from zero to one of three brood-years, as specified for the recovery unit.*

Because of the danger of extinction of the CCC Coho ESU, for the third criterion of this first goal the Department is setting the most basic target of establishing one brood-year in streams that currently are believed to have none of the three brood-years present. Because of the better conditions in the SONCC Coho ESU, the Department is commencing with the higher expectation of increasing brood-year representation.

Methods for measuring the progress and status:

- a. Identify brood year representation in recovery units.
- b. Identify appropriate streams for re-establishment of missing brood years.
- c. Apply actions and mechanisms for re-establishing missing brood years.
- d. Conduct brood-year analysis and population monitoring.

## GOAL II. MAINTAIN AND INCREASE THE NUMBER OF SPAWNING ADULTS

*Criterion 1 The specified number of spawning adults has been attained and sustained for the recovery unit.*

Methods for measuring the progress and status:

- a. Identify and apply actions and mechanisms for maintaining spawning habitat and other habitat important for adult coho salmon.
- b. Monitor adult population status and trends.

## GOAL III. MAINTAIN THE RANGE AND MAINTAIN AND INCREASE THE DISTRIBUTION OF COHO SALMON

This goal speaks to increasing the distribution of the species within its current range by increasing the number of occupied historic streams within each recovery unit.

Increasing the distribution of coho salmon is inextricably linked with the success of achieving goals I, II, IV, and V, as well as increasing the percent of potential distribution occupied by coho salmon each year.

*Criterion 1 Current range of coho salmon is maintained.*

Methods for measuring the progress and status:

- a. Identify and apply actions and mechanisms to maintain current range and distribution.
- b. Conduct population monitoring.

*Criterion 2 Current distribution of coho salmon is maintained.*

Methods for measuring the progress and status are the same as for Criterion 1 above.

*Criterion 3 An increase in distribution has been attained and sustained within each ESU, as specified for the recovery unit.*

- i. Coho salmon distribution within the CCC Coho salmon ESU has been increased to at least 60% of historic streams to downlist.
- ii. Coho salmon distribution within the CCC and SONCC Coho salmon ESUs has been increased each to at least 75% of historic streams to delist.

Methods for measuring the progress and status:

- a. Identify areas feasible and appropriate for increasing distribution.
- b. Apply actions and mechanisms to increase distribution.
- c. Conduct presence/absence monitoring.

**GOAL IV. MAINTAIN EXISTING HABITAT ESSENTIAL FOR COHO SALMON.**

*Criterion 1 Habitat essential for coho salmon has been identified and protected, as specified for the recovery unit.*

Methods for measuring the progress and status:

- a. Analyze existing watershed assessments and plans.
- b. Gather necessary field data and conduct necessary mapping.
- c. Develop and apply a habitat quality index (HQI) based on a standard suite of measurable habitat quality parameters where HQIs currently do not exist.
- d. Identify and apply actions and mechanisms for protecting existing, essential habitat.
- e. Monitor habitat condition.



**GOAL V. ENHANCE AND RESTORE HABITAT WITHIN THE RANGE OF COHO SALMON.**

*Criterion 1 Habitat benefiting coho salmon has been restored or enhanced, and then maintained, as specified for the recovery unit.*

Methods for measuring the progress and status:

- a. Identify areas feasible and appropriate to restore or enhance.
- b. Apply appropriate restoration or enhancement activities.
- c. Develop and apply HQIs where HQIs currently do not exist.
- d. Monitor (a) coho salmon use of restored and enhanced habitat and effectiveness of restoration activities and (b) habitat condition.

**4.2.1.2 Recovery Units**

To facilitate monitoring of progress towards recovery, the Department divided each ESU into recovery units (see Chapter 6). The recovery units are groups of smaller drainages that are related hydrologically, geologically, and ecologically and are believed to function as unique and important components of the ESU.

Measuring progress toward recovery will be done at the recovery unit scale. The SONCC Coho ESU has been divided into 17 recovery units, while the CCC Coho ESU has been divided into six recovery units (Table 4-1). These recovery units and the watershed delineations within them are presented in Chapter 6. NOAA Fisheries are undergoing a similar process of defining recovery units and have not yet reported their findings. However, the Department has conferred with NOAA Fisheries, and the recovery unit delineations are consistent with their process at this time.

**TABLE 4-1: RECOVERY UNITS WITHIN THE SONCC AND CCC COHO ESUS**

SONCC COHO ESU RECOVERY UNITS	CCC ESU COHO RECOVERY UNITS
Rogue/Winchuck rivers	Mendocino Coast
Smith River	Russian River
Shasta Valley	Bodega-Marin Coastal
Scott River	San Francisco Bay
Salmon River	San Mateo Coast
Middle Klamath River	Big Basin
Lower Klamath River	
Trinity River	
South Fork Trinity River	
Mad River	
Redwood Creek	
Trinidad	
Eureka Plain	
Lower Eel/Van Duzen rivers	
South Fork Eel River	
Middle/Upper Fork Eel River	
Cape Mendocino	

Ultimately, attaining recovery of coho salmon requires many actions and activities which are contained in the recommendations. Prioritized tasks to achieve the recovery goals are listed in implementation schedules for the entire range as well as the SONCC and CCC Coho ESUs (Chapter 9), and the Shasta-Scott Pilot Program (SSPP; Chapter 10). The Department believes that successful implementation of these tasks will lead to recovery of California coho salmon.

#### 4.2.2 DELISTING AND DOWNLISTING TARGETS

The quantitative targets for the various downlisting and delisting criteria are discussed below, although they were introduced earlier and presented in Tables 4-2, 4-3, and 4-4. For all delisting criteria for the CCC Coho ESU, other than increasing distribution (goal III, criterion 3) and enhancing and restoring habitat (goal V), the Department and recovery teams have not developed preliminary targets. The Department believes some level of accomplishment and evaluation of downlisting needs to occur before meaningful delisting targets for most recovery goals can be established. Development of delisting targets for the CCC Coho ESU could begin during the first twenty years of recovery activities within the range of the CCC Coho ESU.

##### 4.2.2.1 Targets for Coho Salmon Populations: Goals I, II, and III

Preliminary targets for maintaining and improving existing populations (goal I, criterion 1) have been established for all 17 watershed units in the SONCC ESU. Preliminary targets for establishing additional populations (goal I, criterion 2) have been set for 15 of the 17 units; the Department still is evaluating appropriate targets for the Rogue/Winchuck rivers and Trinidad recovery units. These targets are shown in Table 4-2, and the streams and rivers are listed in Appendix D. For all but one recovery unit (i.e., San Francisco Bay) of the CCC Coho ESU, preliminary downlisting targets have been set for maintaining and improving existing populations (goal I, criterion 1). Targets have not been set for delisting for this criterion, and targets have not been set for either down- or delisting for establishing additional populations (goal I, criterion 2). The Department and recovery teams anticipate developing the remaining downlisting targets for criteria 1 and 2 in 2004. Downlisting and delisting targets for the CCC Coho ESU are shown in Table 4-3 and Table 4-4, respectively, and key streams and rivers are listed in Appendix D.

TABLE 4-2: DELISTING TARGETS FOR THE SONCC COHO ESU

SONCC ESU RECOVERY UNITS	DELISTING TARGETS								
	GOAL I			GOAL II	GOAL III			GOAL IV	GOAL V
	CRIT. 1	CRIT. 2	CRIT. 3	CRIT. 1	CRIT. 1	CRIT. 2	CRIT. 3	CRIT. 1	CRIT. 1
Rogue/Winchuck rivers	8	TBD	2004	TBD	Maintain current condition.	Maintain current condition.	75	2005	2005
Smith River	27	10	2004	TBD			75	2005	2005
Shasta Valley	1	1	2004	TBD			75	2005	2005
Scott River	14	3	2004	TBD			75	2005	2005
Salmon River	5	4	2004	TBD			75	2005	2005
Middle Klamath River	31	11	2004	TBD			75	2005	2005
Lower Klamath River	33	1	2004	TBD			75	2005	2005
Trinity River	27	4	2004	TBD			75	2005	2005
South Fork Trinity River	5	1	2004	TBD			75	2005	2005
Mad River	15	5	2004	TBD			75	2005	2005
Redwood Creek	12	5	2004	TBD			75	2005	2005
Trinidad	9	TBD	2004	TBD			75	2005	2005
Eureka Plain	24	4	2004	TBD			75	2005	2005
Lower Eel-Van Duzen rivers	14	14	2004	TBD			75	2005	2005
South Fork Eel River	59	18	2004	TBD			75	2005	2005
Middle/Upper and North Fork Eel River	7	3	2004	TBD			75	2005	2005
Cape Mendocino	17	15	2004	TBD			75	2005	2005

## Notes:

Goal I: Criterion 1: Number of streams or rivers currently identified as having populations to maintain or improve (streams listed in Appendix D).

Criterion 2: Number of streams or rivers currently identified as locations where populations could and should be established (Appendix D).

Criterion 3: The Department will report preliminary targets in 2004.

Goal II: The application of this goal to the SONCC Coho ESU is still to be determined (TBD) by the Department.

Goal III: Criteria 1 and 2: Both criteria require that current conditions (i.e., range and distribution, respectively) be maintained.

Criterion 3: Values are expressed as a percentage of suitable and historic streams with coho presence detected.

Goals IV and V: Linear miles of stream/near-stream habitat targets will be set in 2005.

TABLE 4-3: DOWNLISTING TARGETS FOR THE CCC COHO ESU

CCC ESU RECOVERY UNITS	DOWNLISTING TARGETS								
	GOAL I			GOAL II	GOAL III			GOAL IV	GOAL V
	CRIT. 1	CRIT. 2	CRIT. 3	CRIT. 1	CRIT. 1	CRIT. 2	CRIT. 3	CRIT. 1	CRIT. 1
Mendocino Coast	9	2004	2005	15,000	Maintain current condition.	Maintain current condition.	60	2005	633
Russian River	1	2004	2005	15,000			60	2005	50
Bodega-Marin Coastal	2	2004	2005	1,600			60	2005	26
San Francisco Bay	0	2004	2005	TBD			60	2005	TBD
San Mateo Coast	0	2004	2005	1,350			60	2005	47
Big Basin	1	2004	2005	1,450			60	2005	47

Notes:

TBD: To be determined

Goal I: Criterion 1: Number of streams or rivers currently identified as having populations to maintain or improve (streams listed in Appendix D).  
 Criterion 2: Number of streams or rivers currently identified as locations where populations could and should be established (Appendix D). Targets to be determined by 2004.

Criterion 3: The Department will report preliminary targets in 2005.

Goal II: Criterion 1: Numbers of spawning adults.

Goal III: Criterion 3: Percentage of suitable and historic streams with coho presence detected.

Goal IV: Criterion 1: Linear miles of stream/near-stream habitat. Targets will be set in 2005.

Goal V: Criterion 1: River miles.

TABLE 4-4: DELISTING TARGETS FOR THE CCC COHO ESU

CCC ESU RECOVERY UNITS	DELISTING TARGETS								
	GOAL I			GOAL II	GOAL III			GOAL IV	GOAL V
	CRIT. 1	CRIT. 2	CRIT. 3	CRIT. 1	CRIT. 1	CRIT. 2	CRIT. 3	CRIT. 1	CRIT. 1
Mendocino Coast	TBD	TBD	2005	TBD	Maintain current condition.	Maintain current condition.	75	2005	633
Russian River	TBD	TBD	2005	TBD			75	2005	50
Bodega-Marin Coastal	TBD	TBD	2005	TBD			75	2005	26
San Francisco Bay	TBD	TBD	2005	TBD			75	2005	TBD
San Mateo Coast	TBD	TBD	2005	TBD			75	2005	47
Big Basin	TBD	TBD	2005	TBD			75	2005	47

Notes:

TBD: To be determined.

Goal I: Criterion 3: The Department will report preliminary targets in 2005.

Goal III: Criterion 3: Percentage of suitable and historic streams with coho presence detected.

Goal IV: Criterion 1: Linear miles of stream/near-stream habitat. Targets will be set in 2005.

Goal V: Criterion 1: River miles.

The list of rivers and streams in Appendix D is preliminary and does not represent an all-inclusive set of drainages for all recovery units. Therefore, recovery units in which no streams have been identified for maintenance, improvement, or establishment of key populations are not necessarily devoid of such streams. Revisions of these lists will be part of the periodic Recovery Strategy updates to the Commission, beginning in 2004.

Information the Department is gathering through ongoing presence/absence surveys will be used to establish targets for expansion of brood years in each recovery unit (goal I, criterion 3) for both ESUs. The Department will report its brood-year targets for the SONCC Coho ESU in 2004 and for the CCC Coho ESU in 2005.

Preliminary downlisting targets have been established only for attaining and sustaining spawning adults (goal II) for the CCC Coho ESU (Table 4-3). The Department is continuing to evaluate and gather information to refine these targets and will report any revisions in its annual report to the Commission in 2004. Based on the need and feasibility, the Department is evaluating whether it will apply goal II to the SONCC Coho ESU. The Department will consult with NOAA Fisheries, other agencies and organizations, and the recovery teams and report its preliminary decision in 2005.

Two of the three criteria under goal III (range and distribution) address maintaining current conditions: criterion 1 (range) and criterion 2 (distribution). As with its brood-year analysis, the Department anticipates reporting more specific information on current distribution for the SONCC Coho ESU in 2004 and for the CCC Coho ESU in 2005.

Targets for increasing the distribution (goal III, criterion 3) have been established for delisting both ESUs (Tables 4-2 and 4-4) and for downlisting the CCC Coho ESU (Table 4-3). The downlisting target for the CCC Coho ESU (i.e., 60%) corresponds approximately to the current distribution within the SONCC Coho ESU, and the preliminary delisting target (i.e., 75%) currently is identical for both ESUs. The Department does not foresee revising these targets until the initial trends are measurable or until and unless the federal TRTs develop appreciably different targets in their recovery plans.

#### 4.2.2.2 Targets for Coho Salmon Habitat: Goals IV and V

The data collection and analysis necessary for determining habitat essential for coho salmon have not been completed across the range of either ESU. To set most of the specific targets for habitat protection (goal IV) and enhancement and restoration (goal V), the Department is in the process of compiling existing information on

habitat location and condition, identifying past and current habitat restoration, determining where additional field work or analysis is necessary, and identifying habitat essential for coho salmon in each recovery unit.

Each goal has a single criterion to evaluate the achievement of the goal. For both goals, the metric is linear miles of stream/near-stream habitat. Goal IV refers to maintaining existing, suitable to optimum habitat, and goal V refers to enhancing and restoring other coho salmon habitat. For the purpose of delisting the SONCC or CCC Coho ESU, preliminary targets have not been set for either criterion (Table 4-2 and Table 4-4).

For the purpose of downlisting the CCC Coho ESU, the Department and recovery teams have not set the preliminary target of maintaining existing habitat (goal IV) but have established preliminary targets for enhancing and restoring habitat (goal V, Table 4-3) for all but one of the recovery units.

Preliminary delisting targets not yet established for the SONCC Coho ESU (Goals IV and V) and downlisting targets for the CCC Coho ESU (Goal IV) will be set by 2005. The Department does not anticipate setting preliminary delisting targets for the CCC Coho ESU until status information on the progress of downlisting targets is available.

#### 4.3 FISHERIES RESTORATION GOAL

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An additional goal<sup>6</sup> of the Recovery Strategy is to restore coho salmon numbers to the point where viable tribal, recreational, and commercial fishing (viable coho salmon fishery) can occur. This goal cannot be fully achieved until the prior five goals have been achieved and the species is delisted (see Figure 4-1). To achieve this goal, the Department will collaborate with the appropriate tribes, the federal government, and stakeholders.

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<sup>6</sup> This additional goal meets the requirements of FGC § 2111(e), which was added by SB 216 (Statutes 2003 Chap. 854). This goal does not affect the first objective of the Recovery Strategy or the goals to achieve delisting. The author of SB 216 notes in a letter, dated September 12, 2003 (published in the Senate Journal on September 13, 2003) that FGC § 2111(e) “does not change the primary goal of the recovery strategy program as set forth in § 2105 of the Fish and Game Code...Therefore, if a species has recovered to the point that the regulatory requirements or other protections for species listed pursuant to CESA are no longer necessary, then no permit pursuant to CESA would be required for incidental take of the species, even if the species has not achieved a level of abundance that would permit resumption of commercial use.”

GOAL VI: REACH AND MAINTAIN COHO SALMON POPULATION LEVELS THAT ALLOW FOR THE RESUMPTION OF TRIBAL, RECREATIONAL, AND COMMERCIAL FISHERIES FOR COHO SALMON IN CALIFORNIA.<sup>7</sup>

Coho salmon population levels allowing for a viable coho salmon fishery will exceed the numbers necessary for recovery. Hence, restoration of a viable coho salmon fishery would occur some time after delisting has been achieved. Restoration of viable recreational and commercial fisheries would be implemented and monitored through fishing regulations governed by the Commission and the Pacific Fisheries Management Council (PFMC) and not by the Department through CESA. The PFMC is an organization composed of representatives from California, Oregon, Washington, the federal government, affected Indian tribal governments, the ocean sport and commercial fishing industries, and ocean conservation organizations. Restoration of a viable tribal fishery would be implemented by Indian tribal governments and the federal government, and the Department, other state agencies, and other stakeholders would assist whenever appropriate and requested.

Goal VI meets the new CESA requirement, set forth in 2003, which states that in order to approve a recovery strategy, the Commission must find, among other things, that the recovery strategy would recover a formerly commercially valuable species to a level of abundance that would permit commercial use of that species (FGC § 2111(e).) This requirement does not affect the primary recovery goal of this Recovery Strategy or the delisting criteria.<sup>8</sup>

FGC § 2084 allows the Commission to authorize take by hook and line for sport or to authorize incidental take pursuant to FGC § 2080 et seq. or § 2800 et seq. The Department and recovery teams discussed the potential for selective recreational and tribal coho salmon fisheries, specifically hatchery coho salmon in the Klamath-Trinity Rivers Basin. The feasibility of such fisheries or other selective fisheries could be evaluated in the future, and the Commission's authorization of such a fisheries or incidental take is not based on achieving any of the downlisting or delisting goals.

After delisting is achieved, the Department, appropriate tribes, the federal government, and stakeholders, including the recovery teams, would determine how to continue implementation of appropriate elements of the Recovery Strategy pursuant to and consistent with other applicable local, state, and federal law and voluntary measures.

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<sup>7</sup> A decision by the Commission to authorize take by hook and line for sport pursuant to FGC § 2084 or to authorize incidental take pursuant § 2080 et seq. or § 2800 et seq. of the FGC, is not predicated upon the attainment of any of the recovery strategy goals or criteria.

<sup>8</sup> See Footnote 2, Chapter 1, Introduction for more detail on FGC § 2111(e).

The Department's preliminary timelines for establishing and evaluating coho salmon fisheries are based on initial monitoring of coho salmon inland recovery activities, fishing, managing fishing, and potential fisheries issues in response to ocean conditions (see Chapter Three). The Department believes that it will require two decades or more of evaluation to adequately model coho salmon populations in context of salmon population status and trend monitoring and variable ocean conditions. The Department will establish coho salmon assessment and monitoring (see Chapter Five) and base it on the three-year life history of coho salmon. For all of these reasons and the fact that estimating long-term ocean condition cycles can take several decades, the Department believes the minimum timeline for its first evaluation would be 21 years. The steps for re-establishing recreational and commercial fishing are described below.

#### 4.3.1 RECREATIONAL FISHING

*Criterion 1 Limited recreational fishing commences in selected areas and continues for a determined number of years once adult populations have exceeded population levels described in recovery goals I and II.*

Areas will be selected based on the relative health of coho salmon runs and the presence of recreational fishing opportunities and interest.

Methods for measuring the progress and status:

- a. Select areas, annual timing and duration, and initial number of seasons of coho salmon recreational fisheries.
- b. Open selected coho salmon recreational fishery.
- c. Conduct coho salmon population monitoring.
- d. Conduct fisheries surveys.

*Criterion 2 The recreational fishery is expanded to the fullest extent feasible for additional years once it is documented that the limited recreational fishery has not significantly reduced levels or compromised the viability of coho salmon in each ESU over initial years of fishing.*

Methods for measuring the progress and status:

- a. Identify feasible and appropriate areas for extension of fishery.
- b. Expand coho salmon recreational fishery.
- c. Conduct coho salmon population monitoring.
- d. Conduct fisheries surveys.



*Criterion 3 A permanent recreational fishery is attained when the expanded recreational fisheries have not significantly reduced sustained levels of coho salmon in each ESU over the initial years of fishing.*

Methods for measuring the progress and status:

- a. Resume permanent coho salmon fishery.
- b. Conduct coho salmon population monitoring.
- c. Conduct fisheries surveys.

#### 4.3.2 COMMERCIAL FISHING

There are two essential issues dealing with coho salmon recovery for the commercial fishing industry. The primary issue is to recover coho salmon so that current regulations on the Chinook salmon fishery to reduce coho salmon by-catch are made less restrictive. A secondary issue is to re-establish a coho salmon commercial fishery.

*Criterion 1 Experimental limited ocean harvesting of coho salmon is established when it has been determined that elimination of by-catch restriction for commercial harvest of other species has not significantly reduced sustained levels of coho salmon in each ESU over the initial years of fishing.*

Methods for measuring the progress and status:

- a. Evaluate area, timing, duration, and degree of experimental coho salmon commercial fishery.
- b. Open experimental commercial coho salmon fishery.
- c. Conduct coho salmon population monitoring.
- d. Conduct fisheries surveys.
- e. Conduct focused, financed, experimental commercial fishing. This might involve financing a limited number of commercial vessels to specifically investigate the ability to and impact of commercial fishing for coho salmon.

*Criterion 2 Commercial harvest of coho salmon is established when it has been determined that the experimental commercial fishery has not significantly reduced sustained levels of coho salmon in each ESU over the initial years of harvest.*

Methods for measuring the progress and status:

- a. Evaluate feasible expansion of coho salmon commercial fishery.
- b. Expand coho salmon commercial fishery.
- c. Conduct coho salmon population monitoring.
- d. Conduct fisheries surveys.